Vegetation Replacement/Restoration Plan

November 2006





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Prepared for:

Environmental Programs Division Department of Public Works County of San Luis Obispo



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Vegetation Replacement/Restoration Plan

1.0 Introduction

This Vegetation Replacement/Restoration Plan (VRRP) implements the mitigation measure from the Nacimiento Water Project Environmental Impact Report (EIR) (Marine Research Specialists, 2003) which states that the San Luis Obispo County Flood Control and Water Conservation District (District) shall prepare a Vegetation Replacement/Restoration Plan for vegetative communities that are significantly impacted and that are to be permanently removed from project sites (Mitigation Measure BR-6). This VRRP also identifies protection measures to minimize the area of permanent removal consistent with EIR Measures BR-3, 4, and 5, and implements BR-11 through BR-15 for specific species. For this latter function, the VRRP substitutes the special-status plant species actually occurring, and mapped in 2005 (ESA, 2005), as opposed to the species presumed present in the EIR.

There are two additional Nacimiento Water Project Mitigation Plans which compliment this VRRP. These are the Mitigation, Monitoring and Compensation Plan (ESA[Environmental Science Associates], 2006a), which describes restoration of wetland and riparian vegetation and the Oak Tree Mitigation and Monitoring Plan (ESA, 2006b).

1.1 Project Summary

The Nacimiento Water Project (NWP or Project) is designed to provide a reliable supplemental water source for a variety of uses within San Luis Obispo (SLO) County by supplementing the local ground and surface water supplies with a new surface water source. The SLO County Flood Control and Water Conservation District (District) has a 17,500 afy entitlement from Lake Nacimiento per agreement executed in 1959 with Monterey County, and this water will be transported south in a pipeline over 40 miles long with associated turnouts, a new powerline, pumping stations and other associated facilities. The NWP will be constructed within three broad physiographic regions: coastal mountains and valleys, interior mountains and valleys, and a coastal plain. Lake Nacimiento is located in the Santa Lucia coastal mountain range. Major water courses are the Nacimiento and Salinas rivers and Santa Margarita Creek. Major streams include Paso Robles, Santa Rita, Graves, Atascadero, San Marcos and Yerba Buena creeks. South of the Cuesta Grade, major water courses in the project area include Stenner and San Luis Obispo creeks. Major drainage basins include the Lake Nacimiento Watershed and the Salinas River.

Eleven special status plant species were observed in the Project study area during appropriately timed plant surveys in 2005. These species are:

- Club-haired mariposa lily (*Calochortus clavatus* var. *clavatus*; CNPS List 4)
- San Luis Obispo mariposa lily (Calochortus obispoensis; CNPS List 1B)
- San Luis Obispo sedge (Carex obispoensis; CNPS List 1B)
- Obispo Indian paintbrush (Castilleja densiflora ssp. obispoensis; CNPS List 1B)
- Brewer's spineflower (Chorizanthe breweri; CNPS List 1B)
- Palmer's spineflower (*Chorizanthe palmeri*; CNPS List 4)
- Straight-awned spineflower (Chorizanthe rectispina; CNPS List 1B)
- Gypsum-loving larkspur (Delphinium gypsophilum var. gypsophilum; CNPS List 4)
- Small-flowered gypsum-loving larkspur (*Delphinium gypsophilum* var. *parviflorum*; CNPS List 4)
- Jepson's woolly sunflower (*Eriophyllum jepsonii*; CNPS List 4)
- Paso Robles navarretia (Navarretia jaredii; CNPS List 4)

None of these species are listed as rare, threatened, or endangered under state or federal legislation, or as of special concern by the state or federal governments. However, they are listed by the California Native Plant Society (CNPS), and therefore potential impacts to these species were considered in the NWP Final EIR pursuant to the California Environmental Quality Act (CEQA, Section 15380). Potential impacts to populations comprising CNPS List 1B plants (San Luis Obispo mariposa lily, San Luis Obispo sedge, Obispo Indian paintbrush, Brewer's spineflower, and straight-awned spineflower) were considered significant under the CEQA Guidelines because these species meet the criteria of Section 15380 (b).

These five species are the subject of this Plan. The figures in Appendix A depict the distribution of the special status species observed within the NWP rare plant study area. These maps also show GIS location data for special status species obtained from Camp Roberts (CANG, 2001) and CNDDB (CDFG, 2005).

1.2 Responsible Parties

San Luis Obispo County Flood Control and Water Conservation District

Public Works Department, County Government Center, Room 207, San Luis Obispo, CA 93408

Contact: John Hollenbeck, Project Manager, jhollenbeck@co.slo.ca.us (805) 781-1288

2.0 San Luis Obispo Mariposa Lily

San Luis Obispo mariposa lily (Appendix A Figures S-02 and S-04): ESA documented two locations for this species in close proximity to the alignment in the upper Stenner Creek watershed, approximately at Stations 2497 and Station 2503¹. While there were only approximately 25 widely scattered plants on the bench in the former location, there were several hundred more individuals scattered among the rocks downslope. The second location was in coastal scrub habitat and numbered less than 100 plants. Approximately 40 percent of the plants were in bloom during the May 2005 survey.

3.0 San Luis Obispo Sedge

San Luis Obispo sedge (Appendix A Figure S-01): This species was found in a freshwater seep located in the upper Stenner Creek watershed at approximately Station 2387. Associates included small willows and Baltic rush. The sedge provided a dense cover throughout one portion of the seep with approximately 20 individual plants present. Another portion of the seep was severely trampled by cattle and was more sparsely vegetated but several more individuals were present here. Most of the plants had inflorescences at the time of the May survey.

4.0 Obispo Indian Paintbrush

Obispo Indian paintbrush (Appendix A Figure N-11): One individual suspected to be Obispo Indian paintbrush was found at Station 457 in non-native grassland habitat along Perimeter Road near a previously documented location (CANG, 2001). The plant was nearly finished blooming and because there was only one plant it was not collected, so ESA was unable to make a positive identification. This species was growing in non-native grassland with a relatively high native species component. Associates included Paso Robles navarretia and purple needlegrass, as well as non-native annual grasses, wild carrot (*Daucus carota*), and calochortus (*Calochortus venustus*).

5.0 Brewer's spineflower

Brewer's spineflower (Appendix A Figures S-01, S-02, and S-03): This species has been documented throughout the upper Stenner Creek watershed (CNDDB, 2005). ESA found occurrences of this species located on rock outcrops and roadcuts in scrub habitat in this area. ESA documented four populations near Stations 2373, 2380, 2405 (confirming a CNDDB occurrence), and 2475. Population sizes ranged from approximately 50-75 individuals to over 1000 individuals. The first of these populations was located on a talus slope at the foot of a road cut with few other plant species present. The other populations were located on fairly extensive

¹ All station numbers are subject to change before final design; the appended maps are the best source of location information.

rock outcrops, with other species present including Palmer's spineflower, San Luis Obispo mariposa lily, yucca (*Yucca whipplei*), golden yarrow, foothill needlegrass (*Nassella lepida*), gilia (*Gilia achilleifolia* ssp. *achilleifolia*), California sage, and phacelia (*Phacelia* sp.). Many individuals were in full bloom during the May survey and some were still blooming and otherwise readily identifiable during the June survey.

6.0 Straight-awned Spineflower

Straight-awned spineflower (Appendix A Figure N-07): ESA located one occurrence of this species at Camp Roberts, confirming a previously mapped location (CANG, 2001). The population, several hundred individuals in size, occurred near Station 213, adjacent to, and south of, Boy Scout Road and the proposed NWP alignment. Habitat consisted of a limestone "pebble plain", which was sparsely vegetated with a few non-native grasses, filaree, many-stemmed gilia (*Gilia clivorum*), and black mustard. The fairly level ground and lack of trees at this location makes it attractive as a turn out or for construction laydown.

7.0 Special-status Plant Protection Measures and Translocation Protocols

7.1 Protection Measures

General protection measures:

- A pre-construction survey.
- On-site protection measures consisting of establishment of a protection zone and other avoidance measures.
- Construction monitoring to assure compliance with mitigation measures.

The pre-construction survey will re-locate known populations and if necessary survey areas where the NWP pipeline alignment has changed during the final Project design.

The on-site protection zone² will consist of the occupied habitat, as determined and marked during the pre-construction survey, and a buffer area. The buffer area is intended to prevent impacts to plants at the outer margin of the population. The buffer area shall be a maximum of 25-feet wide, measured from the outer margin of occupied habitat; the buffer area width can be reduced in locations where Project activities are unlikely to occur within the vicinity of occupied habitat. The protection zone boundary shall be marked in the field with temporary fencing or another material that is durable, clearly visible to construction personnel and the Biological Monitor³ and will not adversely affect livestock or wildlife. Any marking material used will be

² "On-site" meaning within the project corridor and therefore subject to disturbance.

³ The Biological Monitors are the individuals designated by the District as the responsible parties for ensuring implementation of the EIR Mitigation Measures and regulatory permit conditions (see ESA, 2006a).

approved by the landowner, as appropriate. Temporary fencing will be installed by construction personnel or other contractors with the assistance of the Biological Monitor.

The Biological Monitor will check the site daily, when construction is occurring in the area, determining whether temporary fencing is intact, is in the correct location and is effective in preventing impacts from construction and site access, and whether erosion control measures associated with new road construction and site access are properly installed and are effective in preventing impacts. If the Biological Monitor finds that the temporary fencing or erosion control measures are not installed properly or are not preventing impacts, or that adverse impacts to are occurring due to other actions, the Biological Monitor will inform the Contractor Compliance Manager, and will advise on needed corrective actions.

The Biological Monitor will document compliance or non-compliance, and any direct construction impact, with photographs. The NWP Project Manager will be notified within 24 hours of any non-compliance activities impacting or potentially impacting special-status species and their buffer areas. Non-Compliance documentation, including photographs from established vantage points as well as those showing impact to the area, will be forwarded to the NWP Project Manager.

7.2 Translocation Protocols

If avoidance of special-status plants is not feasible, the District shall contract with a specialist to harvest plant seeds and bulbs, as well as top-soil for post-construction restoration or replanting in an appropriate location -- a process often referred to as translocation.

Translocation is the movement of plant propagules (e.g. seeds, bulbs, stems, etc.) from one place to another in order to establish a new self-sustaining group of plants (Howald, 1996). In considering whether to implement translocation as mitigation for this Project, it is important to note that translocation of rare plants in California has a documented low rate of success, especially for species with narrow ecological tolerances and specific habitat requirements (Fiedler, 1991; Falk et al., 1996). In general, regulatory agencies such as the California Department of Fish and Game and the US Fish and Wildlife Service do not promote translocation of special-status plants in California, although they accept it when avoidance is infeasible. Translocation will be implemented only if Project-related impacts to special-status plants are unavoidable, and cannot be mitigated by other means.

One factor that has contributed to the low rate of success for translocation of special-status plants in California is the lack of information on the biology and ecological requirements of most special-status plants (Howald, 1996). Therefore, the translocation protocols described below rely on generalized habitat descriptions and anecdotal observations derived from floras and unpublished reports.

The translocation protocols described below assume that potential sites for translocation will be located normally on the property on which the impacted population was found.

Propagule collection and handling:

- The District will contract with a Specialist (qualified botanist) to collect propagules.
- The Specialist will collect propagules only from the local population that will be or has been impacted by the Project.
- The Specialist will collect all bulbs and mature, dry seed.
- The Specialist will clean the propagules and store them in a cool, dry place.
- If impacts can be anticipated, bulbs and seed will be collected prior to impact from the area where impacts are expected, if mature seed is available then; if mature seed is not available prior to impact, then it will be collected post-impact from the unaffected portion of the local population.
- If unanticipated impacts occur, then bulbs will be collected immediately from the affected area if feasible and seed will be collected from the unaffected portion of the local population as soon as mature seed is available.

Translocation site selection:

- The Specialist, in cooperation with the property owner, will select an appropriate translocation site; determination of suitability will be based on ecological conditions, including soil type, soil moisture conditions, slope aspect, and general habitat requirements of the affected species.
- In the event that disturbance to occupied habitat of a species is expected to be temporary, the translocation site will consist of the habitat that was disturbed by Project activities.
- In the event that disturbance to occupied habitat is expected to be permanent, the translocation site will consist of habitat that was unoccupied during surveys completed for this Project, but appears to be suitable.

Site preparation and out-planting:

- Prior to outplanting, the Specialist will inspect the site to assure that it is free from weeds
 and construction debris, and that the slope and soil condition are suitable for out-planting
 seed and/or bulbs; if needed, the District will hire a contractor to weed the site, clear
 debris, or modify slope conditions.
- The Specialist will out-plant seed by hand-broadcasting in the fall, immediately prior to the onset of the rainy season. Bulbs will also be planted by hand prior to onset of the rainy season.

Site monitoring and management:

• Following out-planting, the Specialist will monitor the translocation site monthly, or more frequently if needed, and will report to the District any conditions, such as erosion

and weed invasion, that are likely to cause failure of the translocation; if needed, the District will hire a contractor to correct erosion problems and remove invasive weeds.

- The Specialist will conduct effectiveness monitoring during the growing season following out-planting; effectiveness monitoring will consist of estimates of numbers of individuals and area occupied within the translocation site, and a comparison of conditions within the translocation site to those in the natural population.
- The Specialist will develop criteria for determining the success of the translocation effort. Success criteria and documentation including established photo vantage points will be submitted to the District for review.
- The Specialist will document the results of the translocation in a brief report to the District.
- The translocation site will be monitored according to the protocols described above for a period of five years following out-planting and a final report submitted.
- The translocation site will be protected in perpetuity by a conservation easement.

8.0 Needlegrass Grassland

Purple needlegrass grasslands are dominated by purple needlegrass (*Nassella pulchra*). Purple needlegrass grasslands and the non-native annual grasslands that still support a high native herbaceous component are found at Camp Roberts and in the upper Stenner Creek watershed. These areas were not mapped in the rare plant survey (ESA, 2005), and this work should be performed on Camp Roberts and upper Stenner Creek during the spring preceding NWP construction to similar standards, with belt transects parallel to the alignment approximately 100 feet wide, and locations of neeedlegrass grasslands mapped independently in Garmin GPSmap 76S GPS unit. Similar to the pre-construction surveys for special-status plants described above, areas with dominant needlegrass cover will be marked as an on-site protection zone, consisting of the occupied habitat, and a buffer area 25-feet wide, measured from the outer margin of occupied habitat.

The Biological Monitor will check the site daily, when construction is occurring in the area, determining whether temporary fencing is intact, is in the correct location and is effective in preventing impacts from construction and site access. The Biological Monitor will document any direct construction impact, with photographs on designated needlegrass grassland habitats.

The restoration of needlegrass grasslands shall include salvaging of topsoil, recontouring the impact area to its original contours, and revegetating this area with purple needlegrass, nodding needlegrass, and foothill needlegrass plugs at the appropriate time of year (November-January). Availability of needlegrass plugs can be a problem, and it may be necessary to secure a supply in well in advance of need. Here is a list of native grass plugs that I have available. They typically come in trays of 200 plugs and the dimension of the plug is 1" square on the top and tapers 3"

deep. They should be planted no greater than 6" apart. Areas to be "plugged" should be thoroughly watered to soften the soil., watered again after planting and daily for 7-10 days or until plugs are firmly rooted.

9.0 Report Authors and References

9.1 Report Authors

Environmental Science Associates (ESA) 225 Bush Street, Suite 1700 San Francisco, CA 94104

Project Manager: Thomas A. Roberts **Report Preparation:** Thomas A. Roberts

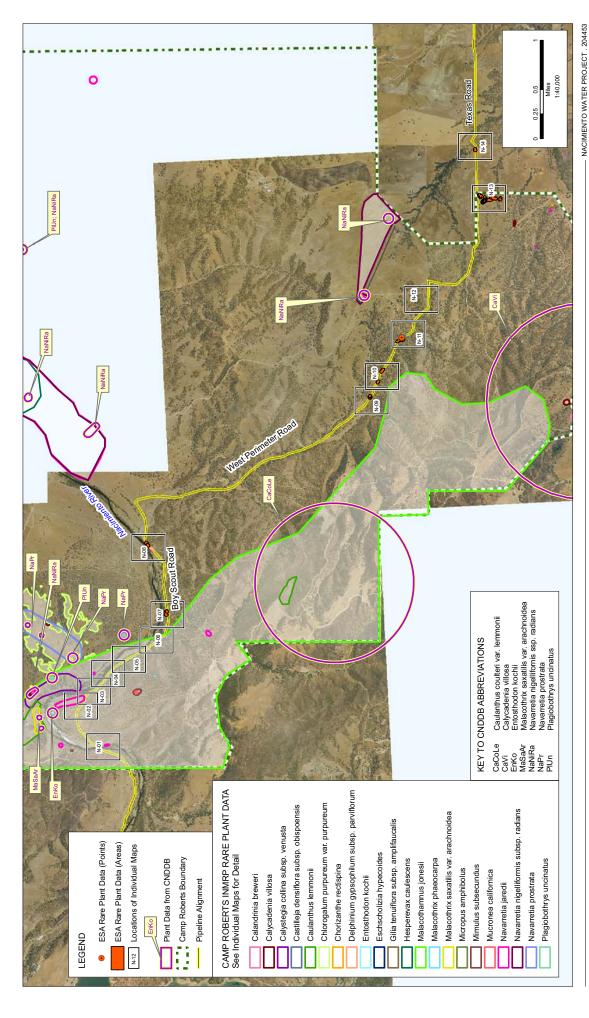
9.2 References

- CalFlora: Information on California plants for education, research, and conservation. [web application]. 2003. Berkeley, California: The Calflora Database [a non-profit organization]. Available online: http://www.calflora.org.
- California Natural Diversity Data Base (CNDDB). 2005. Rarefind 3 printout and GIS database for the Bradley, San Miguel, Paso Robles, Templeton, Atascadero, Santa Margarita, San Luis Obispo, Lopez Mtn 7.5 minute topographic quadrangles, July 5, 2005.
- CANG (California Army National Guard). 2001. Final Draft Integrated Natural Resources Management Plan, Camp Roberts Training Center, Monterey and San Luis Obispo Counties, California. Prepared by The Mangi Environmental Group, Inc. and EcoLogik, Inc. November.
- Environmental Science Associates (ESA). 2005. Nacimiento Water Project Rare Plant Survey Report. Prepared for: Environmental Programs Division, Department of Public Works, County of San Luis Obispo.
- Environmental Science Associates (ESA). 2006a. Nacimiento Water Project Mitigation, Monitoring and Compensation Plan. Prepared for: Environmental Programs Division, Department of Public Works, County of San Luis Obispo. April.
- Environmental Science Associates (ESA). 2006b. Nacimiento Water Project Oak Tree Mitigation and Monitoring Plan. Prepared for: Environmental Programs Division, Department of Public Works, County of San Luis Obispo. August.
- Falk, D.A., C.I. Millar, and M. Olwell, eds. 1996. Restoring Diversity. Island Press. Washington, D.C.
- Fiedler, P.L 1991. Mitigation-related transplantation, relocation and reintroduction projects involving endangered, threatened and rare plant species in California. Unpublished report.

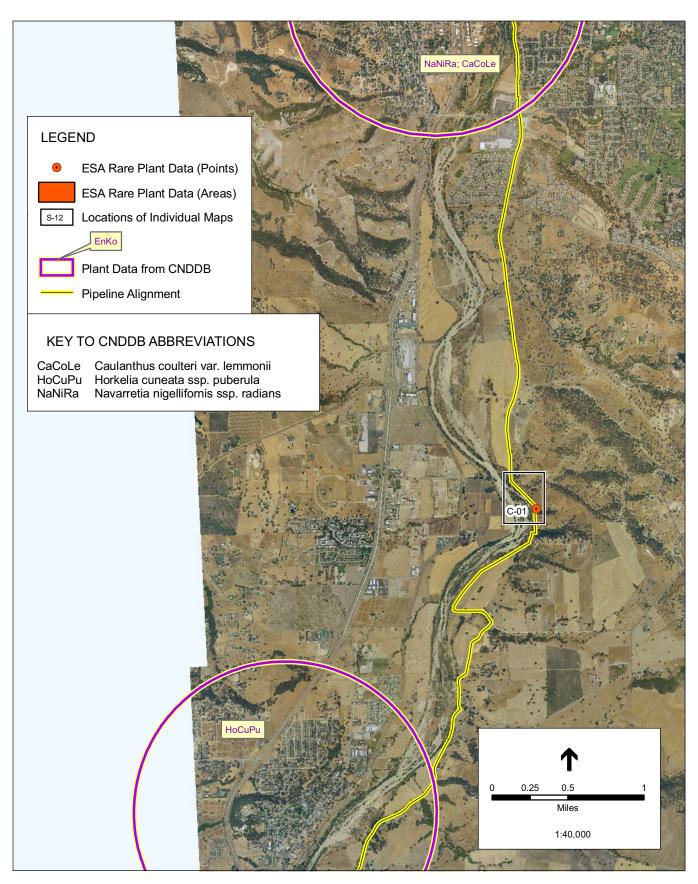
- California Department of Fish and Game, Natural Heritage Division, Endangered Plant Program, Sacramento, California.
- Hickman, J., ed. 1993. The Jepson Manual. University of California Press, Berkeley.
- Howald. A.M. 1996. Translocation as a mitigation strategy: lessons from California. In: Falk, D.A., C.I. Millar, and M. Olwell, eds., *Restoring Diversity*. Island Press, Washington, D.C.
- Marine Research Specialists (MRS). 2003. Final Nacimiento Water Project Environmental Impact Report. SCH #2001061022. *Prepared for*: Department of Planning and Building, San Luis Obispo County.

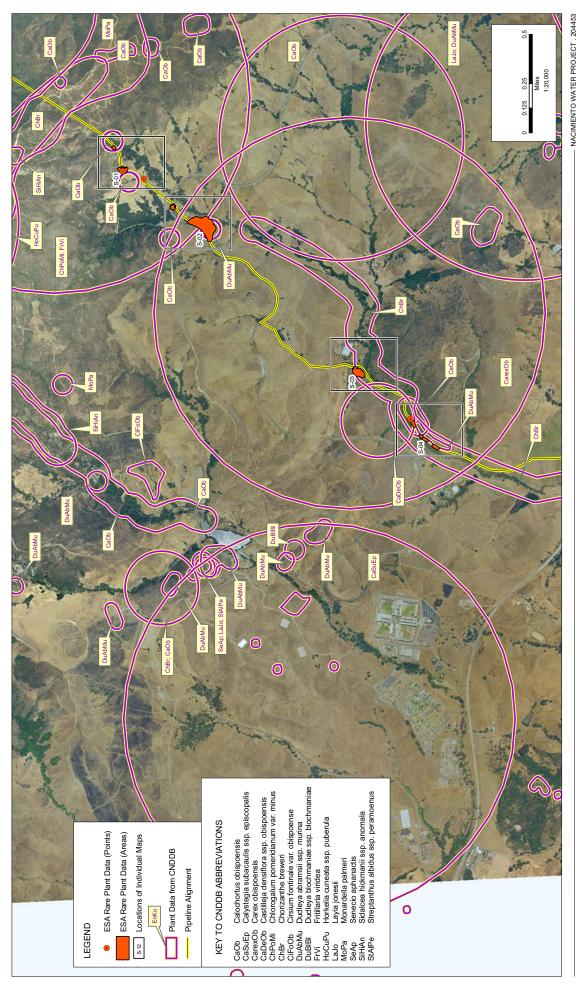
APPENDIX A

Rare Plant Survey Figures



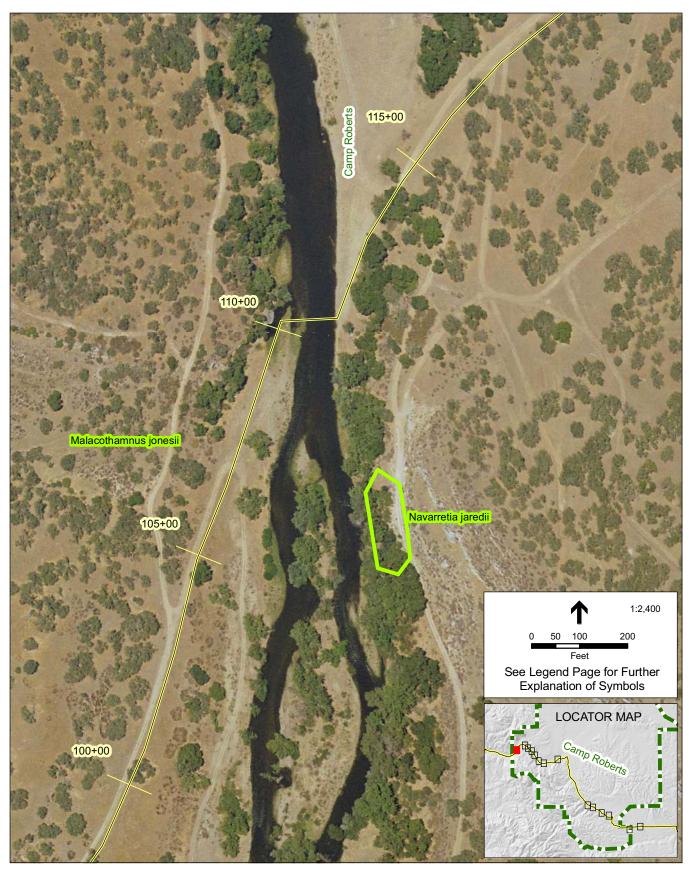
SOURCE: Plant Locations: ESA 2006. Camp Roberts INRMP 2001 and CNDDB, 2005 Public Adjument, Carollo Engineers, 2003 Petral Photos: San Luis Obispo County, 2004

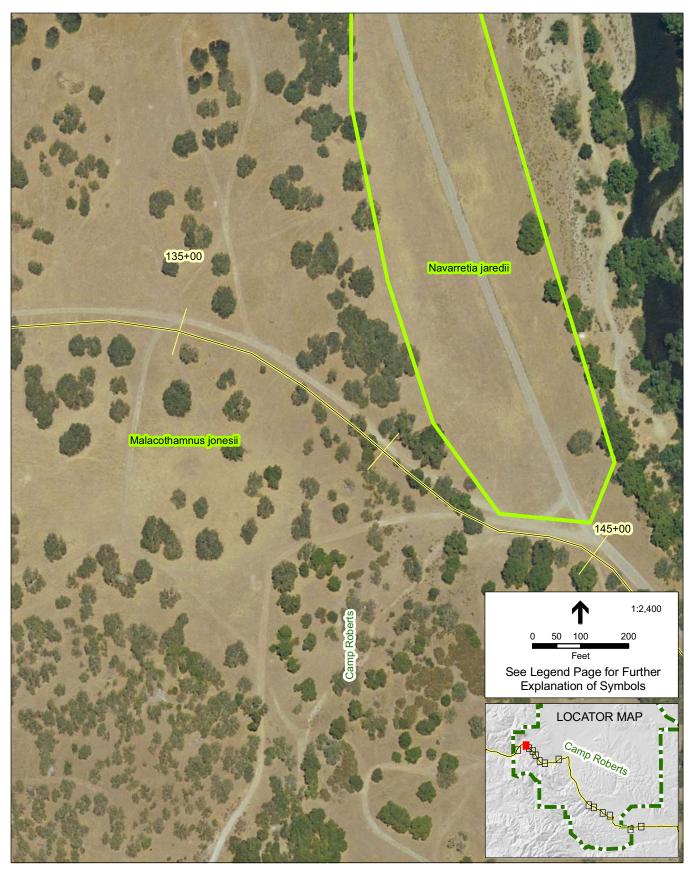


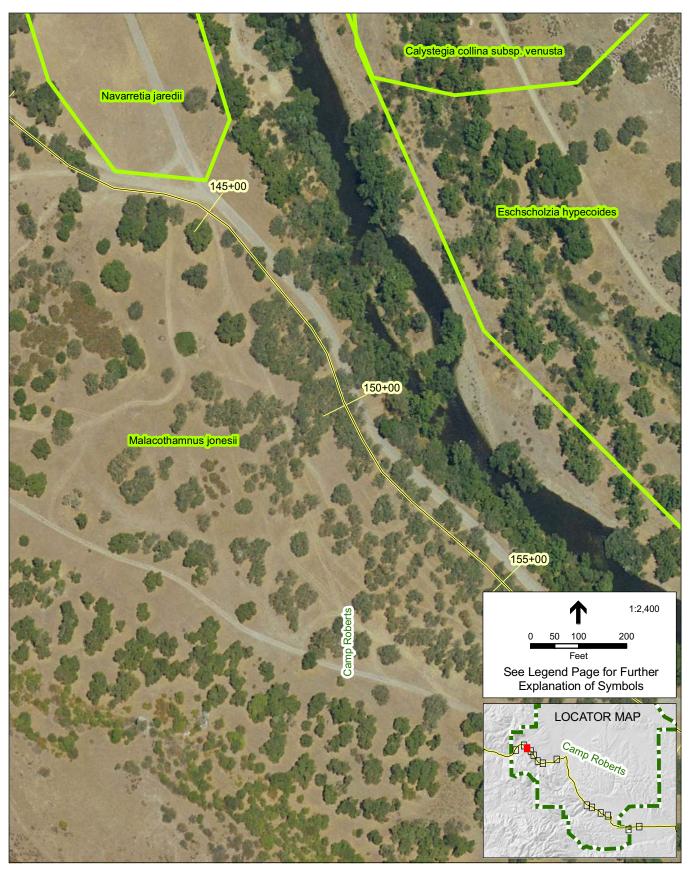


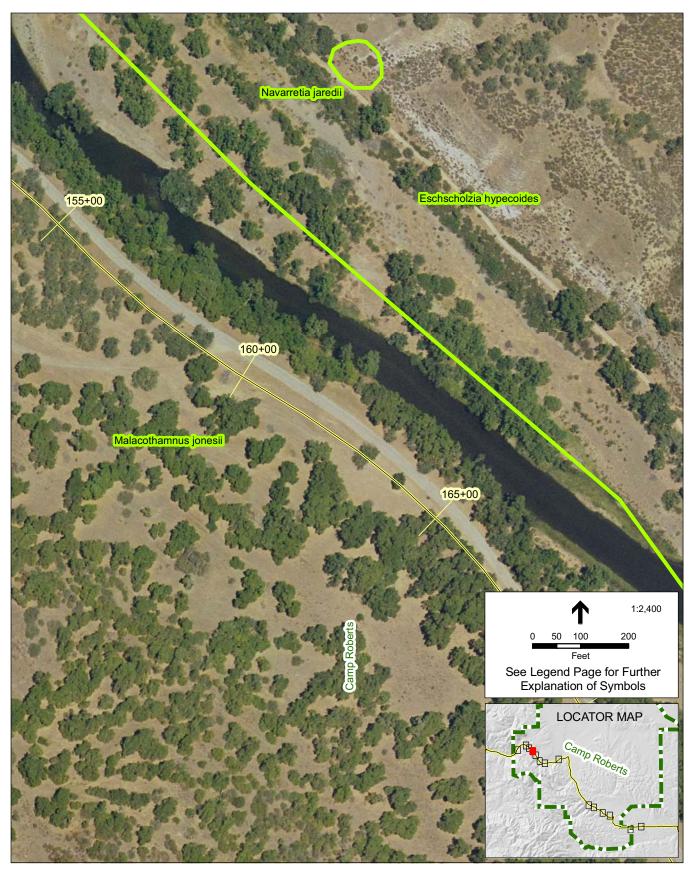
SOURCE: Plant Locations: ESA 2005 and CNDDB 2005 Pipeline Algriment: Carolio Engineers, 2003 Aerial Photos: San Luis Obispo County, 2004

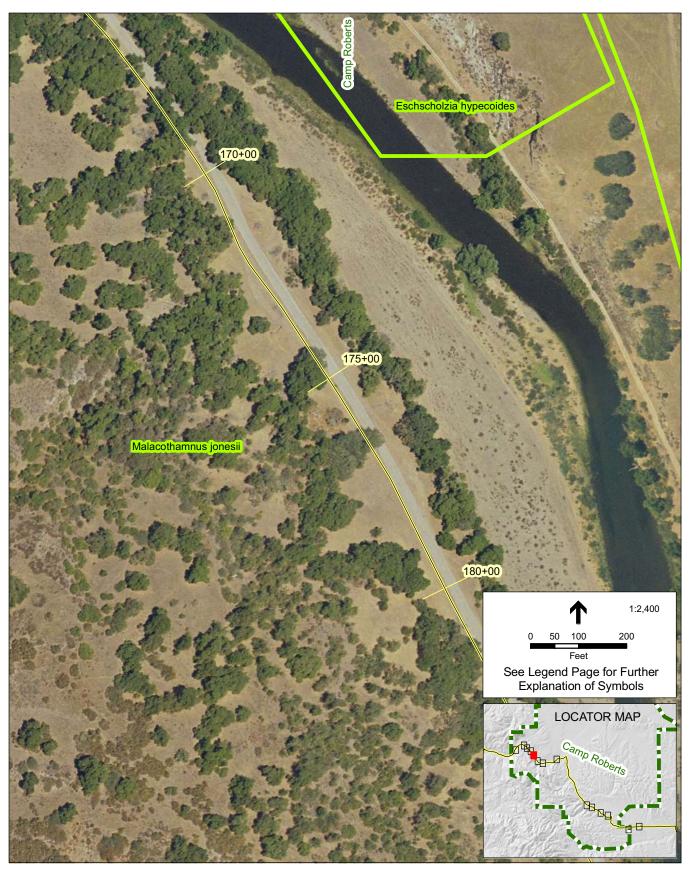
Map OV-3
Rare Plant Survey: Overview, South Portion

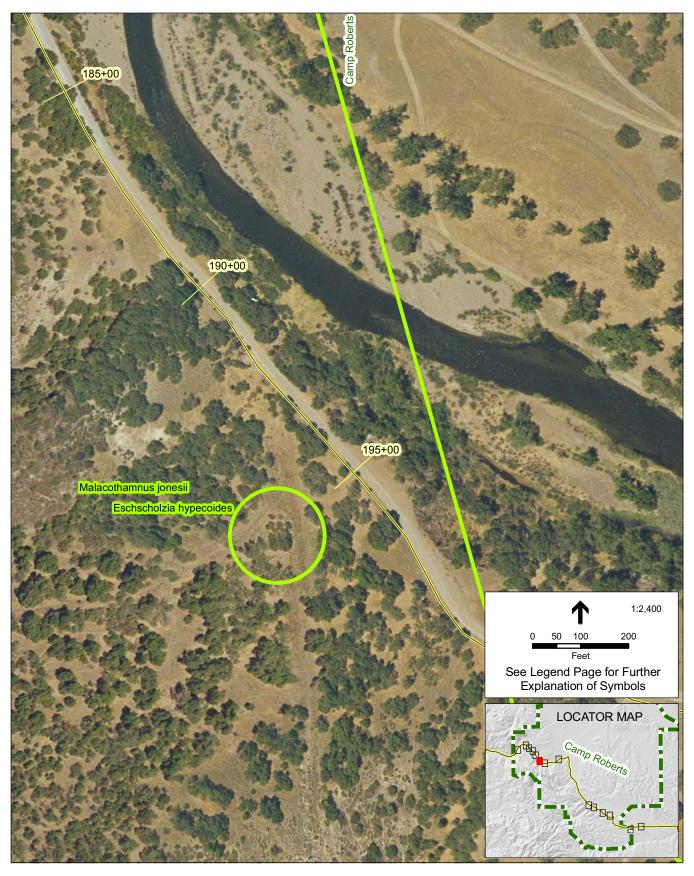


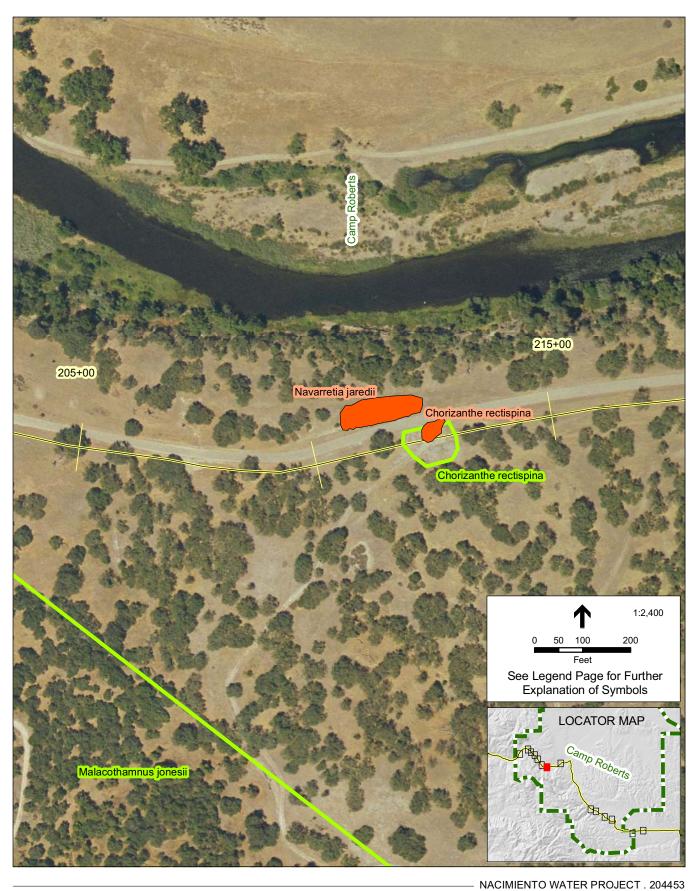


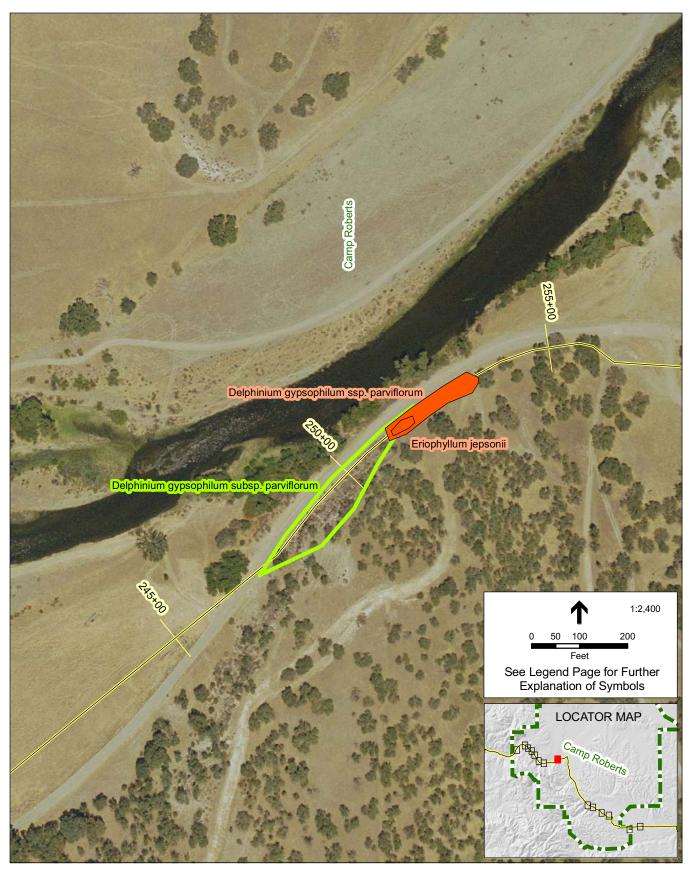


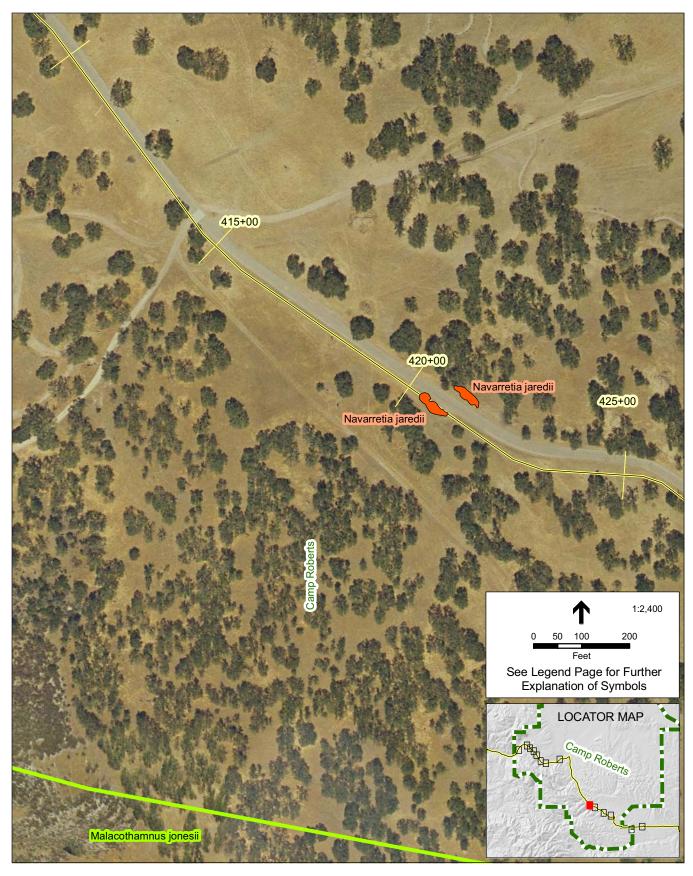


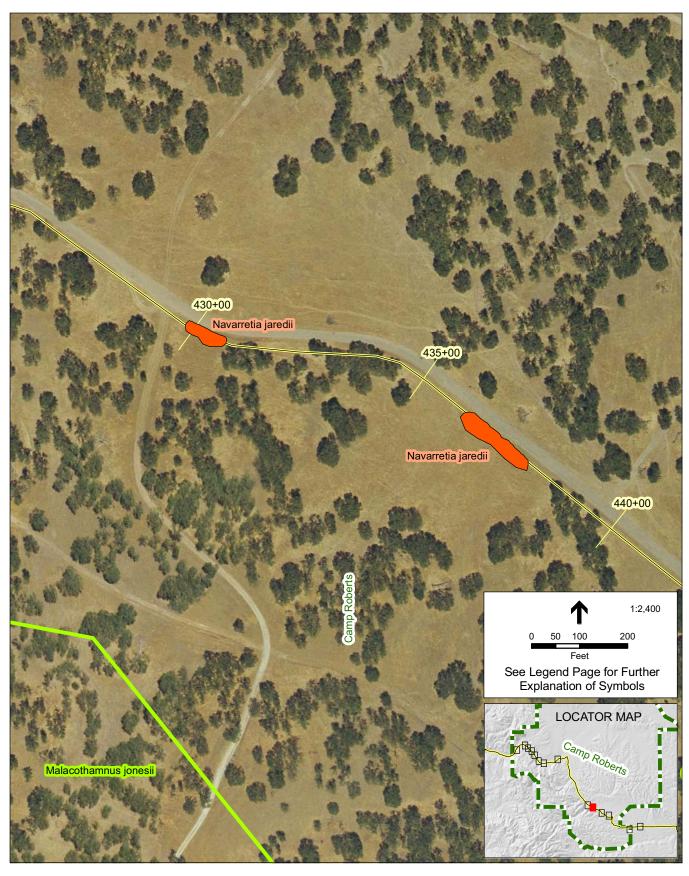


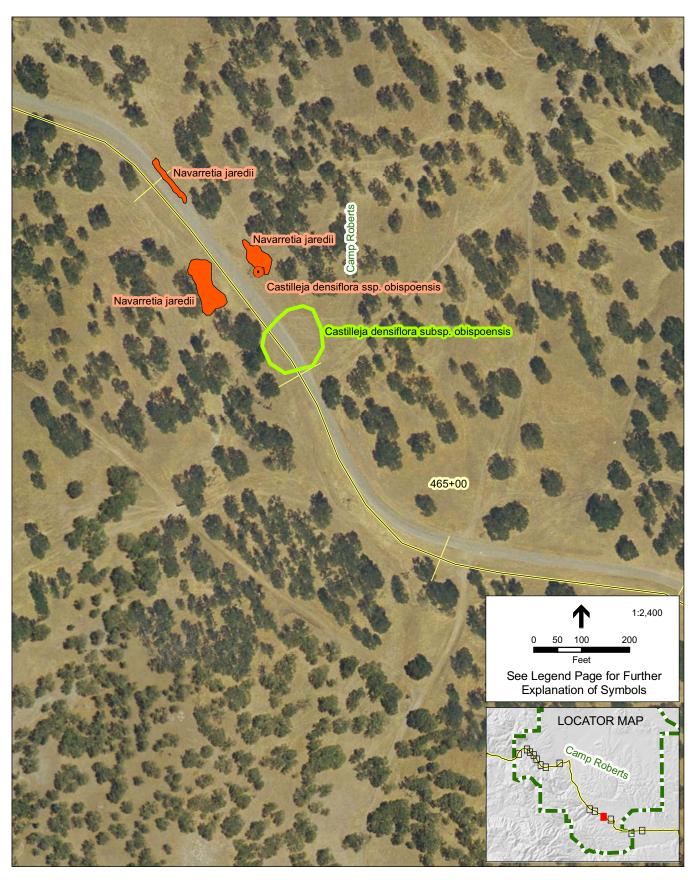


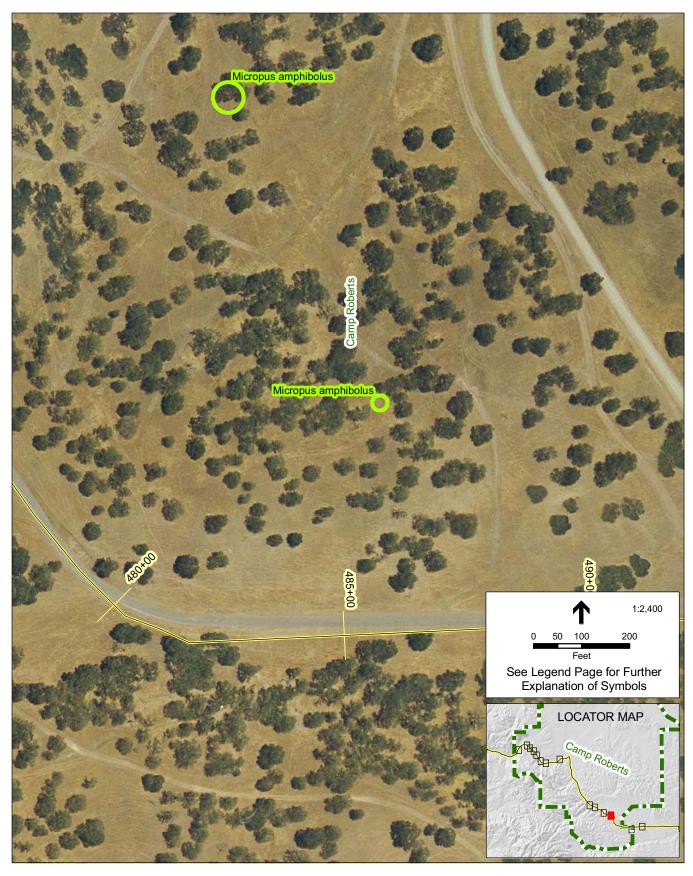


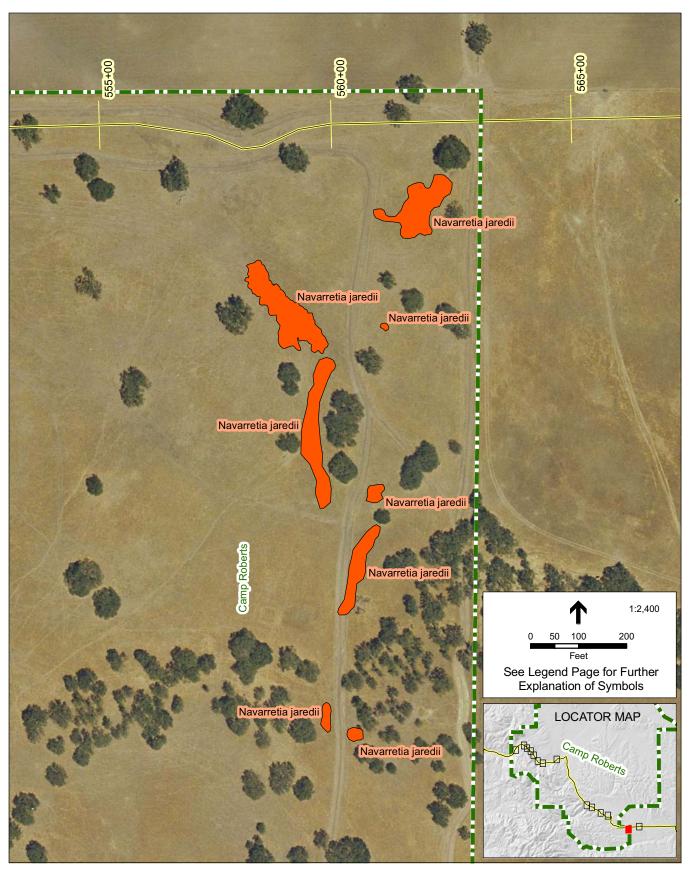


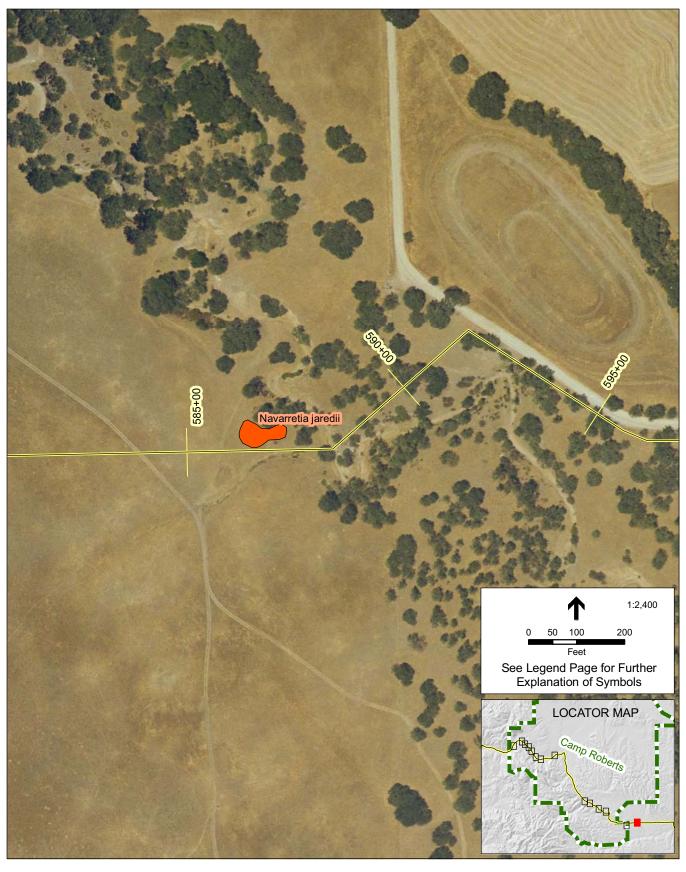


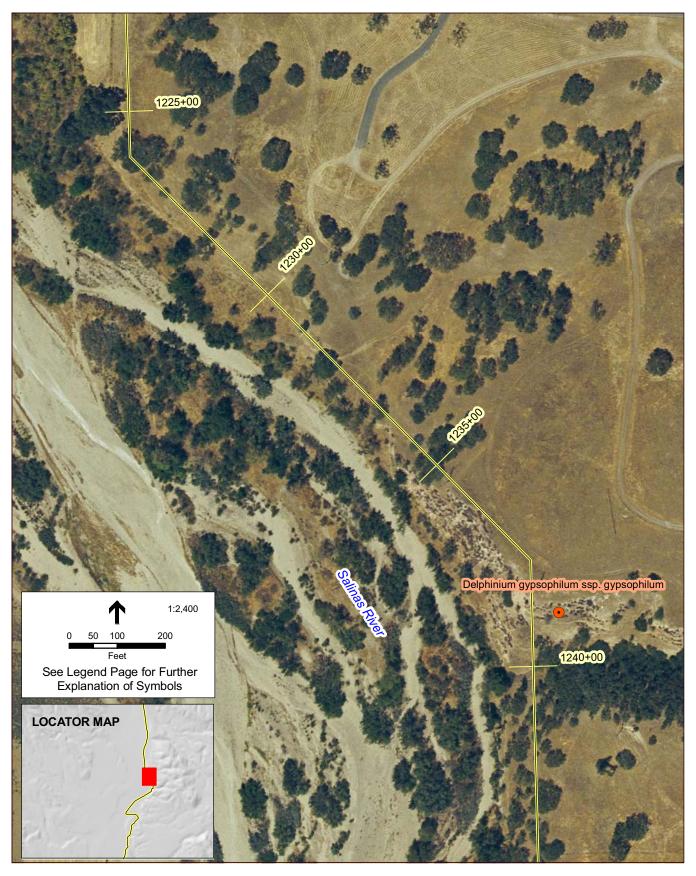


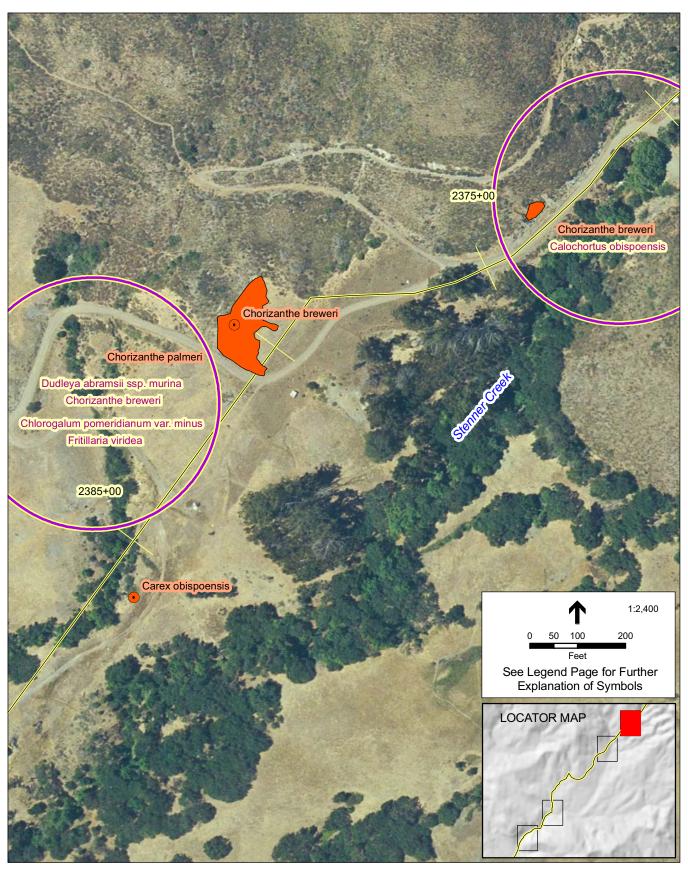


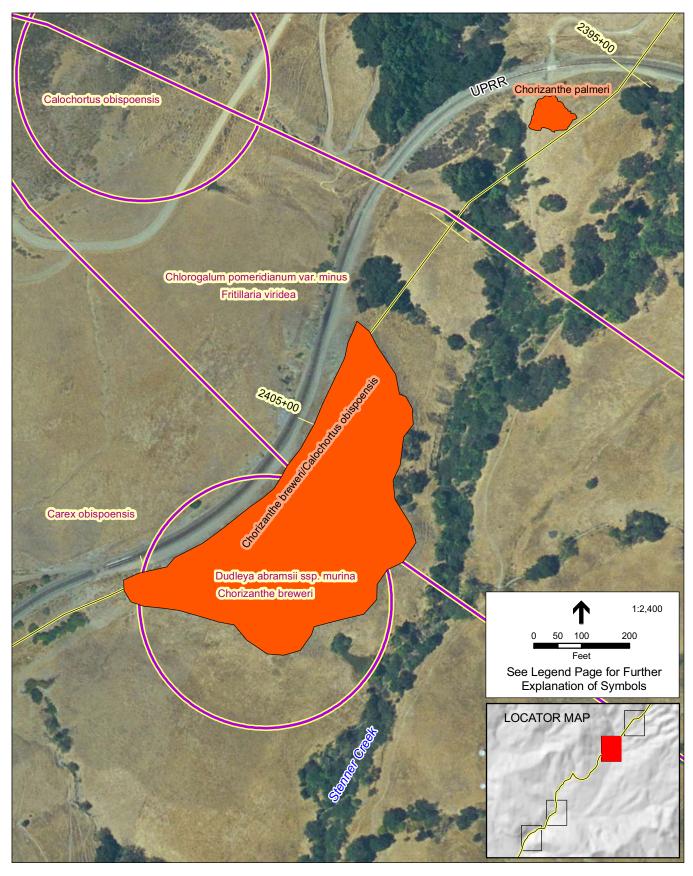


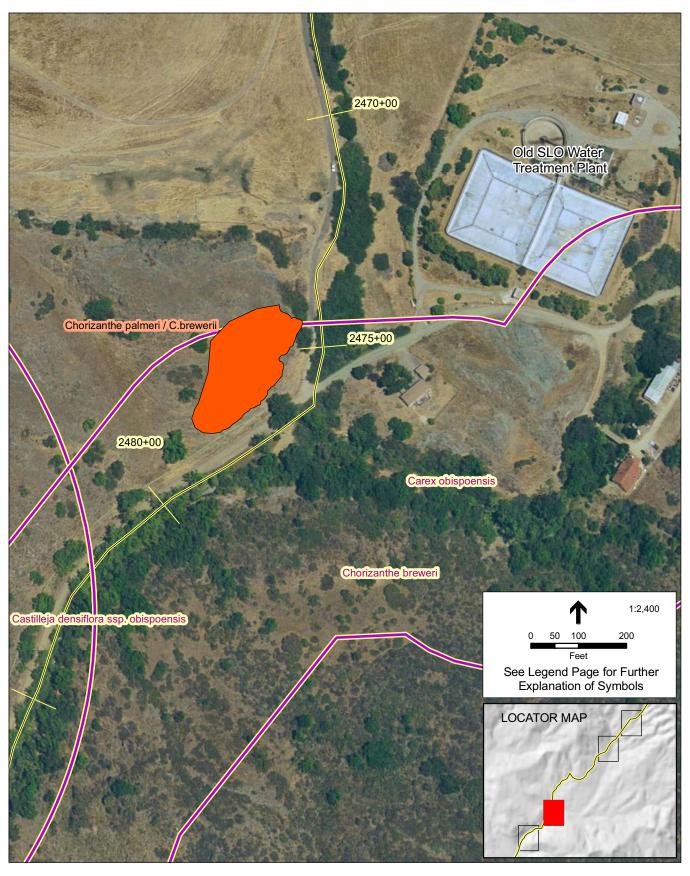


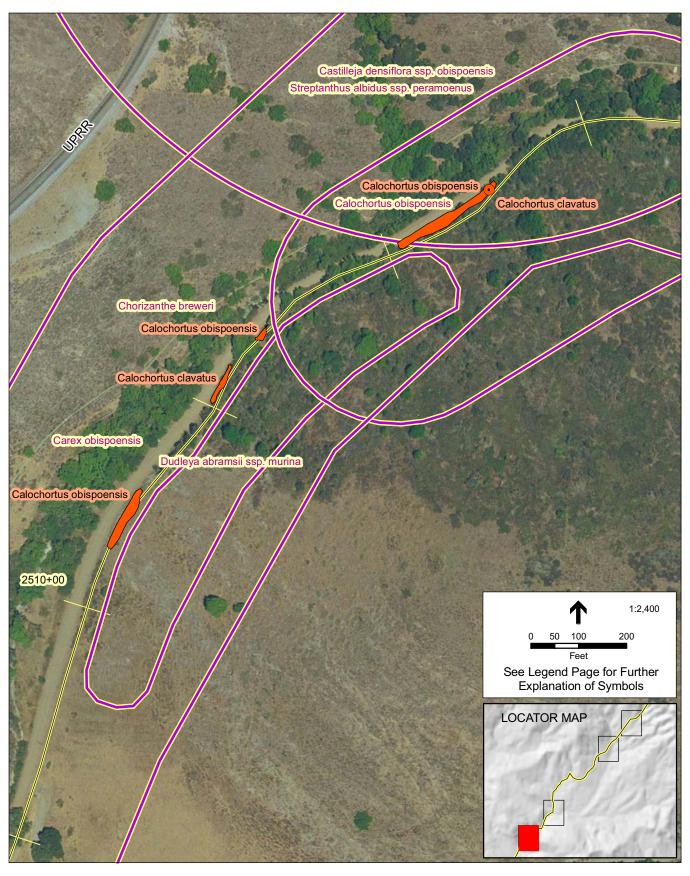


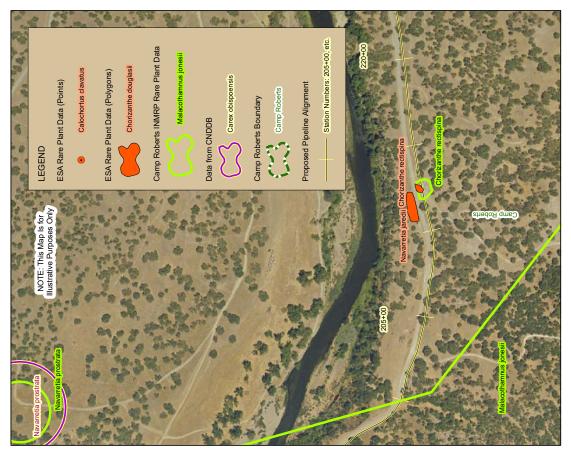












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Map L-1

Rare Plant Survey: Legend